Abstract

A thyristor device can be used to implement a variety of semiconductor memory circuits, including high-density memory-cell arrays and single cell circuits. In one example embodiment, the thyristor device includes doped regions of opposite polarity, and a first word line that is used to provide read and write access to the memory cell. A second word line is located adjacent to and separated by an insulative material from one of the doped regions of the thyristor device for write operations to the memory cell, for example, by enhancing the switching of the thyristor device from a high conductance state to a low conductance state and/or from the low conductance state to the high conductance. This type of memory circuit can be implemented to significantly reduce standby power consumption and access time.